USSR   UDC: 51:155.001.57:681.3.06

TSYPKIN, Ya. Z.

"Generalized Linear Algorithms of Instruction and Their Applications"

Tr. Mezhdunar. simpoziuma po tekhn. i biol. probl. upr., 1968. Raspo-
znavaniye obrazov. Adaptivn. sistemy (Works of the International Sym-
posium on Technical and Biological Problems of Control, 1968. Pattern
Recognition. Adaptive Systems), Moscow, "Nauka", 1970, pp 181-190 (from
RZh-Kibernetika, No 9, Sep 71, Abstract No 9V622)

Translation: Generalized linear algorithms of instruction are introduced
in which estimates of the unknown quantity are determined after pro-
cessing groups of an arbitrary number of data. These algorithms contain
previously known algorithms as special cases. Optimum estimates and
algorithms are defined from the standpoint of minimum variance. It is
shown that for optimum generalized algorithms of instruction, the ac-
curacy of the estimates obtained is independent of the law of variation
in the number of of data processed in the groups. The proposed algo-
rithms are used for solving various problems of instruction: recon-
struction of the characteristics of random sequences, pattern recog-
nition, data transmission. Bibliography of 13 titles.

1/1   - 64 -

1/2   010
TITLE--LEARNING CONTROL SYSTEMS -U-   UNCLASSIFIED   PROCESSING DATE--16OCT70

AUTHOR--TSYPKIN, YA.Z.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 4, PP 55-71

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ELECTRONICS AND
    ELECTRICAL ENGR.
TOPIC TAGS--SELF LEARNING SYSTEM, CONTROL SYSTEM DESIGN, ALGORITHM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1698   STEP NO--UR/0103/70/000/004/0055/0071

CIRC ACCESSION NO--AP0118676
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0118676

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRINCIPLES OF THE DESIGN OF
LEARNING SYSTEMS ARE CONSIDERED. THE GENERAL LEARNING ALGORITHMS
EMBRACING THE FORMERLY KNOWN ONES AS A SPECIAL CASE ARE ESTABLISHED.
THESE ALGORITHMS ARE DETERMINED EITHER BY MINIMIZING THE FUNCTIONALS OF
THE AVERAGE RISK TYPE OR BY APPROXIMATING SOME A PRIORI UNKNOWN DECISION
RULE. THE LAST CASE CORRESPONDS TO THE ADAPTIVE BAYES APPROACH. BOTH
THE LEARNING ALGORITHMS AND THE SELF LEARNING ALGORITHMS ARE PRESENTED.
THERE ARE DESCRIBED EXAMPLES LEARNING CONTROL SYSTEMS FOR INVENTORY
PLANNING CLASSIFICATION OF SIGNALS, COMMUNICATIONS AND CONTROL.

UNCLASSIFIED

1/2   024   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--THEORY OF DISCRETE AUTOMATIC SYSTEMS REVIEW -U-

AUTHOR-(02)-DZHURI, YE.I., TSYPKIN, YA.Z.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 6, PP 57-81

DATE PUBLISHED------70

SUBJECT AREAS--MATHEMATICAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CONTROL THEORY, DISCRETE AUTOMATION, PULSE SIGNAL, AUTOMATIC
CONTROL R AND D

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1008   STEP NO--UR/0103/70/000/006/0057/0081

CIRC ACCESSION NO--AP0124667
                    UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS UNITED THEIR EFFORTS
IN WRITING A REVIEW OF THE THEORY OF DISCRETE AUTOMATIC SYSTEMS. THIS
REVIEW EMBRACES THE MAIN TRENDS OF THE THEORY AND INCLUDES THE FOLLOWING
SECTIONS: THE DESCRIPTION OF PULSE SYSTEMS, THE SYNTHESIS OF LINEAR
PULSE SYSTEMS, THE ANALYSIS OF NONLINEAR PULSE SYSTEMS, THE SYNTHESIS OF
OPTIMAL NONLINEAR PULSE SYSTEMS, SEQUENCE MACHINES, PULSE SYSTEMS WITH A
RANDOM REPETITION PERIOD AND ADAPTIVE PULSE SYSTEMS. IN EACH OF THE
ABOVE MENTIONED SECTIONS THERE IS GIVEN A SHORT ESTIMATION OF THE WORKS
KNOWN TO THE AUTHORS, THE WORKS LISTED IN THE CORRESPONDING SECTION.
THE AIM OF THE ARTICLE LIES IN DESCRIBING THE DEVELOPMENT AND THE STATE
OF RESEARCH IN THE FIELD OF THE THEORY OF DISCRETE SYSTEMS WITHIN THE
LASY TWENTY YEARS.

UNCLASSIFIED

1/2   021   UNCLASSIFIED   PROCESSING DATE--11SEP70

TITLE--NEW NATURAL INTERMETALLIC TIN, ANTIMONY AND COPPER COMPOUNDS -U-

AUTHOR--NIKOLAYEVA, E.P., GRIGORENKO, V.A., GAGARKINA, S.D., TSYPKINA, P.YE.

COUNTRY OF INFO--USSR

SOURCE--ZAP. VSES. MINERAL. OBSHCHEST. 1970, 99(1) 68-70

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOGRAPHIC LOCATION, CRYSTAL STRUCTURE, X RAY ANALYSIS, ZIRCON, RUTILE, MINERAL DEPOSIT, TIN COMPOUND, ANTIMONY COMPOUND, COPPER COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1093   STEP NO--UR/0000/70/099/001/0068/0070

CIRC ACCESSION NO--AP0105953
                    UNCLASSIFIED

2/2   021   UNCLASSIFIED   PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0105953
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNUSUAL MINERALS WERE FOUND DURING
STUDY OF HEAVY CONCS. IN TRIBUTARIES OF THE ELKIAIDAI BROOK (EASTERN END
OF THE NORTHERN NURA TAU RIDGE, UZBEKISTAN) IN THE AREA OF SILURIAN
ARENACEOUS ARGILLACEOUS FORMATIONS. THEY WERE LIGHT GRAY IRREGULAR
NODULAR, AND LAMINAL AGGREGATES WITH INCLUSIONS OF COUNTRY ROCKS.
ZIRCON, LEUCOXEVE, RUTILE, APATITE, ANATASE, ANDALUSITE, BARITE,
CELESTITE, SCHEELITE, AND CINNABAR WERE FOUND TOGETHER WITH THESE NEW
MINERALS WHICH MADE 5PERCENT OF THE FRACTION. THE MICROSCOPIC STUDY
SHOWED THAT THE AGGREGATES ARE METALLIC SN IN CLOSE ASSOCN. WITH WELL
FORMED SMALL CUBIC CRYSTALS OF SOME OTHER MINERAL. THE MACRO AND
MICROSCOPIC STUDY, DISPERSION OF REFLECTANCE IN THE VISIBLE REGION,
MICROHARDNESS, X RAY STRUCTURAL DATA, AND DATA ON THE COMPN., OBTAINED
BY X RAY MICROANALYZER, SHOWED THAT THIS INTERMETALLIC COMPD. IS A NEW
MINERAL CALLED STISTAITE. THE STISTAITE WAS IN THE FORM OF SMALL
(0.02-0.15 MM) CUBIC CRYSTALS WITH METALLIC LUSTER. IT POSSESSED HIGH
REFLECTANCE (81.3PERCENT AT LAMBDA EQUALS 580 NMU) WAS CREAM WHITE, AV.
MICROHARDNESS 115 KG-MM PRIME2, AND PARAMETER A EQUALS 4.15 PLUS OR
MINUS 0.1 ANGSTROM OF ITS BCC. LATTICE. THE MINERAL CONTAINED
49.4PERCENT SN AND 5.06PERCENT SB. THE STISTAITE CRYSTALS HAD NUMEROUS
FINE BLUISH VIOLET INCLUSIONS WITH LOWER REFLECTANCE AND HIGHER HARDNESS
THAN STISTAITE. THE CUBIC CRYSTALS OF STISTAITE WERE NATURAL
INTERMETALLIC COMPDS. WITH SNSB FORMULA.

UNCLASSIFIED

Mechanical Properties

USSR

UDC 621.785.9

ASTAF'YEVA, YE. V., MASLOVA, N. S., and TSYPKINA, YE. D.

"Effect of a Post-Deformation Soak During High-Temperature Thermo-Mechanical Treatment on the Structure and Properties of 45KhNMFA Steel"

Moscow, Stal', No 10, Oct 73, pp 936-937

Abstract: The effect of recrystallization processes during high-temperature thermomechanical treatment was investigated in which a deformation roll (30% at 950° C) was performed and the structure and properties of medium--carbon, complexly alloyed, 45KhNMFA structural steel were determined. Individual samples were rehardened after deformation and other samples -- after soaking 1-15 minutes in the furnace at 880° C. The effect of soaking on tensile properties was insignificant, but after static torsion tests there were substantial effects. A favorable effect on the entire complex of mechanical properties was observed in the initial stage of recrystallization. It is recommended that the steel be hardened again after leaving the rolls and after a controlled soak. Three figures, two bibliographic references.

1/1

DERKACH, A. S., DMITRIYEV, A. A., KOROBOV, M. A., KOMERS, YE. G., KULAKOV, A. I., TSYPLAKOV, A. M.

"Improving the Design of Aluminum Electrolyzers"

Translation: A description of improvements of electrolyzers of various types is presented. In the last 10-15 years, electrolyzers with a side current lead-in have been modified significantly. Work has been started on creating power-ful models for a current strength of 130 kiloamps. Since the first series of electrolyzers with top lead-in were put into operation, significant changes have been introduced into their structural design. These changes have pro-moted improvement of the technical and economic indexes. Operations have developed with respect to selecting the optimal parameters of powerful elec-trolyzers with roasted anodes. Electrolyzers of the given type for a current strength of 130 kiloamps are being tested successfully. For further improvement

1/2

USSR

DERKACH, A. S., et al., Tr. Vses. n.-i. provektn. in-ta alyumin., magn. i elek-
trodn. prom-sti, 1970, No 71, pp 29-36

of the design of electrolyzers of all three types, new ideas are needed based
on theoretical research and the search for new, more efficient structural de-
signs of the basic assemblies and baths, and creation of effective means of
mechanization.

2/2

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USSR

UDC 669.71.472

SEMENOV, V. S., FORSBLOM, G. V., TSYPLAKOV, A. M., YAKUNIN, N. P.

"Study of the Coefficient of Heat Transfer from the Electrolyte to the Lining in Industrial Aluminum Electrolyzers"

Translation: A procedure has been developed and an instrument designed to measure the coefficient of heat transfer from the electrolyte to the lining in industrial aluminum electrolyzers. Measurements have been taken. The magnitude of the heat transfer coefficient varies from 300-400 to 1,200 watts/m^2-deg and more depending on the distance of the measurement point from the anode and its location along the perimeter. Equations are derived for the heat transfer coefficient as a function of the temperature head under the conditions of natural convection and the circulation rate of the electrolyte with forced movement of it. The circulation rate of the electrolyte is calculated, and its dependence on the distance from the anode is demonstrated. There are 3 illustrations.
1/1

USSR

UDC 669.71.472

TSYPLAKOV, A. M., SENIN, V. N., TIMCHENKO, B. I., IKRIN, G. YE., FROLOVA, E. B.

"Aluminum Electrolyzer with Consumable Pins"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 75-84 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G168)

Translation: An experimental electrolyzer with a current strength of 130 kiloamps with consumable pins manufactured from 128 x 7 m Cu tubes was tested. Replacement of the extractable steel pins by consumable copper pins permitted the mean voltage to be decreased by 286 millivolts as a result of which the yield of aluminum per kilowatt-hour was increased by 5.5 grams. The current efficiency was increased by 1.25%. Improvement of the anode quality by lowering the thermal load and absence of rearrangement of the pins led to a reduction in the consumption of the anode mass by 67 kilograms/ton of aluminum and a reduction in the removal of carbon-carrying froth by 43 kg/ton as a result of which the consumption of F salts was reduced by 24 kg/ton.

1/2

USSR

TSYPLAKOV, A. N., et al., Tr. Vses. n.-i. i proyektn. in-tn alyumin., magn. i elektrodn. prom-sti, 1970, No 71, pp 75-84

The copper material balance indicating that 89% of the copper goes into the aluminum is presented. The nonrecoverable losses of copper are $\sim$ 4%. There are 3 tables, 1 illustration and an 8-entry bibliography.

2/2

USSR   UDC 669.721.472

TSYPLAKOVA, M. M., STRELETS, Kh. L.

"Electrolytic Separation of Magnesium With Liquid Aluminum Cathode"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 119-122. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G198 by the authors).

Translation: The influence of certain technological parameters on the yield per current during electrolysis of $MgCl_2$ with a liquid Al cathode is studied. Electrolytic production of Mg occurs with high yields per current (99%). A decisive role is played in the separation of Mg on the liquid Al cathode by diffusion of Mg in the cathode alloy. Forced mixing of the cathode alloy significantly increases the yield per current, simultaneously decreasing the back emf by 0.3-0.4 v. For example, at 700° with $D_k=2.5$ a/cm^2 in experiments without mixing, the yield per current was 91.5%, while in experiments with mixing of the cathode Mg, it reached 99.3%. 4 tables.

1/1

USSR   UDC 632.95

SIMONOV, V. D., IVANOV, A. V., and TSYPLENKOV, A. A.

"A Means of Obtaining Tetrachloromuconic Acid"

USSR Author's Certificate No 307079, filed 8 Sept 69, published 10 Sept 71
(from Referativnyy Zhurnal — Khimiya, No 10(II), 1972, Abstract No 10N586
by T. A. Belyayeva)

Translation: Tetrachloromuconic acid (I), melting point 204-6°, is obtained
by oxidation of decachloro-1,5-hexadiene (II) or decachloro-2,4-hexadiene
concentration H_2SO_4 at 110-115° for 4-5 hours. A mixture of 42,7g II and
200 g 93.3% H_2SO_4 is kept for 4-5 hours at 110°, the reaction mass is poured
into water at 20-30° (volume of water = 0.5 the volume of the reaction mass),
filtered, and the precipitate is washed with $CHCl_3$, obtaining 23 g I, which
is dissolved in ether and purified with activated carbon. The solution is
then dried over $MgSO_4$, evaporated and the residue is recrystallized from a
mixture of ether and benzene. Molecular weight of the dimethyl ester of I
is 306.

1/1

$\mathscr{3}$

USSR

UDC 539.216.2.001.5

GUSEV, V. M., GUSEVA, M. I., KURINYY, V. I., TITOV, V. V., TSYPLENKOV, V. S., BARANOVA, Ye. K., STREL'TSOV, L. N.

"Investigation of the Properties of an Oxide Film Obtained by Atomic Oxygen Ion Bombardment of Silicon and Use of Such a Film for Protecting a PN Junction"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1462-1467

Abstract: The paper presents the results of a study of the thickness of oxide films as a function of the conditions of silicon bombardment by atomic oxygen ions, as well as the composition and dielectric properties of the films and the space charge in them. The protective properties of oxide on structures with ion-injected PN junctions are studied. Most of the experiments were done on N-type and P-type silicon with resistivity of 7-10 $\Omega \cdot$cm. The specimens were irradiated in the chamber of the ILU-2 ion accelerator. It was found that the thickness of the oxide film increases in proportion with the energy of the ions and decreases as the ion current density increases. The dielectric strength of the insulating layer was $(3-10) \cdot 10^6$ W/cm. It is shown that the composition of the film depends on subsequent annealing. 1/2

USSR

GUSEV, V. M., et al., Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1462-1467

By using ion oxidation to protect ion injected PN junctions, the authors were able to synthesize high-voltage low-power diodes with a breakdown voltage of 3.3 kV.

2/2

TSYPLENKOV, V.S.

Physics

TSYPLENKOV, V.S.

JPRS 54318

26 October 1971

UDC: 539.216.2.001.5

SHIELDING FILM p-n JUNCTIONS BY ION BOMBARDMENT

The results are given of an investigation of the thickness
of oxide films as a function of the irradiation of silicon
by nascent oxygen ions. It is established that the film
thickness increases in proportion with the energy of the
ions and decreases with increasing ion current density.
The condition of the oxide film is studied together with
its insulating and protective characteristics. The film
has an amorphous structure. The dielectric stability of
the insulating layer is (3-10).10⁶ V/cm. It is shown that
the condition of the film depends on the temperature of
the subsequent annealing. The use of ion oxidation for
protecting ion-implanted p-n junctions has permitted the
manufacture of high-voltage, low-power diodes with a
breakdown voltage of 3.3 kV.

As we know, with sufficiently high dosages of metal and semiconductor
irradiation by oxygen ions with an energy of several tens of kiloelectron
volts, an oxide layer forms on the surface [1,2]. The peculiarity of ionic
oxidation is that the distribution of the installed oxygen atoms is in the
form of the Gaussian curve with a rather large half-width; i.e., behind the
SiO₂ film is a silicon layer in which the oxygen concentration drops off
with depth in accordance with the tail of the distribution of the implanted
atoms. The ion oxidation process is done at room temperature.

This paper gives the results of an investigation of the oxide film
thickness as a function of the silicon irradiation by nascent oxygen ions and
of the condition of the dielectric characteristics of the film and its space
charge. The protective characteristics of the oxide on structures with ion-
implanted p-n junctions are studied. The major portion of the experiments
were conducted with electron and hole silicon with a resistivity of 7-10 ohm
cm. The specimens were irradiated in the chamber of the ILU-2 ion accelerator
[3].

- 1 -

[I - USSR - F]

TSYPLENKOV, V.S.

physics/electronics

UDC: 539.216.2.603.5

SHIELDING FILM p-n JUNCTIONS BY ION BOMBARDMENT

The results are given of an investigation of the thickness of oxide films as a function of the irradiation of silicon by nascent oxygen ions. It is established that the film thickness increases in proportion with the energy of the ions and decreases with increasing ion current density. The condition of the oxide film is studied together with its insulating and protective characteristics. The film has an amorphous structure. The dielectric stability of the insulating layer is (3-10).10⁵ V/cm. It is shown that the condition of the film depends on the temperature of the subsequent annealing. The use of ion oxidation for protecting ion-implanted p-n junctions has permitted the manufacture of high-voltage, low-power diodes with a breakdown voltage of 3.3 kV.

As we know, with sufficiently high dosages of metal and semiconductor irradiation by oxygen ions with an energy of several tens of kiloelectron volts, an oxide layer forms on the surface [1,2]. The peculiarity of ionic oxidation is that the distribution of the installed oxygen atoms is in the form of the Gaussian curve with a rather large half-width; i.e., behind the SiO₂ film is a silicon layer in which the oxygen concentration drops off with depth in accordance with the tail of the distribution of the implanted atoms. The ion oxidation process is done at room temperature.

This paper gives the results of an investigation of the thickness as a function of the silicon irradiation by the oxide film of the condition of the dielectric characteristics of the film and its space charge. The protective characteristics of the oxide on structures with ion-implanted p-n junctions are studied. The major portion of the experiments were conducted with electron and hole silicon with a resistivity of 7-10 ohm cm. The specimens were irradiated in the chamber of the ILU-2 ion accelerator [3].

- 1 -

[I - USSR - F]

USSR

UDC 669.71.018.9.4

BEREZIN, L. G., TSYPLUKHIN, I. P.

"Advantages of the Method of Electroflux Refining when Casting Ingots from Aluminum Alloys"

Metalloved. splavov leskih met — . V sb. (Physical Metallurgy of Alloys of Light Metals — collection of works), Moscow, Nauka Press, 1970, pp 98-100 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G208)

Translation: The advantages of the indicated method, which has been checked in practice, are described. The introduction of this method into production will improve the technological nature of the ingots and their quality. There are 3 tables and 1 illustration.

1/1.

USSR

UDC 669.716:621.745:55:66.067

BEREZIN, L. G., and TSYPLUKHIN, I. P.

"Advantages of the Electroflux Refining Method In Casting Ingots of Aluminum Alloys"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 98-100, resume

Translation: Advantages of the electroflux refining method in casting ingots of aluminum alloys are described. Introduction of this method into production increases the technology of ingots and improves their quality. One figure, three tables, two bibliographic references.

1/1

18

USSR

UDC 621.314.61 (088.8)

PRIVALOV, A.I., OSOKIN, YE. I., PRIKHOD'KO, A. YA., DAVIDOV, P.D., LASAREV, I.A.,
TSYPLYAYEV, M.S., ALEKSANDROV, I.V., SHARIFO, V.I.

"Multiphase Rectifier Using Controlled [Semiconductor] Rectifiers"

USSR Author's Certificate No 262250, filed 29 Nov 66, published 29 June 70 (from
RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B576P)

Translation: A circuit is proposed for control of a 3-phase bridge semicontrolled
rectifier [vypryamitel']. The control circuit contains an auxiliary bridge non-
controlled rectifier, a relaxation oscillator for triple frequency using a dynistor,
3 auxiliary thyristors, and 3 output pulse transformers. The relaxation oscillator
supplies pulses to the gates of the auxiliary thyristors. The anodes of these
thyristors are connected with the primary windings of the pulse transformers. The
second terminals of these windings are switched in to phases of the voltage for
inherent [sobstvennyy] needs, from which is also supplied the noncontrolled bridge
rectifier of the relaxation oscillator. The cathodes of the auxiliary thyristors
are connected at a common point and are connected across a resistor to the nega-
tive terminal of the noncontrolled 3-phase rectifier. The secondary windings of
the pulse transformers are connected with the gates of the power thyristors. 1 ill.
L.R.
1/1

- 19 -

USSR

TSYPUGINA, V. G., TISKI, N. S., and LAZORENKO, G. YE.

"Artificial and Natural Radionuclides in the Life of Hydrobionts"

Iskusstvennyye i yestestvennyye radionuklidy v zhizni gidrobiontov (cf. English above), Kiev, "Nauk. dumka," 1973, 152 pp ill., 96 k. (from RZh- Biologicheskaya Khimiya, No 15, Aug 73, Abstract No 15F1372 K)

Translation: Results are presented from studies on the caryology and radiation cytogenetics of salt-water fish, the accumulation and distribution of uranium in marine organisms, and on the mechanism responsible for the storage of radionuclides by water plants.

- END -

1/1

CSO: 1841-W

- 75 -

USSR

KOROLEVA, L. V., and TSYRAN, N. I., Division of Radiation Pathophysiology, Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"The Effect of Leukocyte Factors in Intact and X-Ray-Irradiated Animals on Leukocyte Migration"

Abstract: Intradermal injection of rabbits and mice with leukocyte factors (lysosomes, granulocyte substance, and destroyed leukocytes) isolated from polymorphonuclear leukocytes in a peritoneal exudate from intact and X-ray-irradiated animals stimulated leukocyte migration within an hour, peaking after 9 hours. Lysosomes provoked the maximum migration, mainly in the papillary layer of the skin. The intensity of migration was considerably less in both rabbits and rats when the leukocyte factors were obtained from irradiated animals. The leukotactic effect of the polymorphonuclear leukocytes is apparently caused by the lysosome fraction. The weaker leukotactic activity of the preparations from the leukocytes of irradiated animals is further proof that irradiation causes qualitative changes in leukocytes.

1/1

- 30 -

USSR   UDC: 621.396.6.049.75(088.8)

TSYRENSHCHIKOV, N. N., YANIN, A. P., GORELIK, V. T.

"A Device for Tinning and Solder-Filling the Contact Channels of Ceramic Circuit Boards"

Translation: A device is proposed for tinning and soldering the contact channels in circuit boards. The device contains a reservoir filled with molten solder covered with a layer of protective liquid, and a conveyer equipped with clamps located above the reservoir. The circuit board is held by the clamps. To increase the productivity of the device, fastened on a rotating lever in the reservoir is a cylindrical tank made from a material which is resistant to wetting by solder and has triangular slots along the upper edge.

1/1

USSR

FEDOROV, R. I., TSYRKIN, A. T., and SAMOYLOV, V. A.,
Voroshilovgradsk Diesel Locomotive Plant imeni October Revolu-
tion, Kommunarsk Mining and Metallurgical Institute

UDC 621.762:620.17

"Method of Determining Plasticity and Strength of Powder-Metal-
lurgy Materials"

Moscow, Zavodskaya Laboratoriya, Vol 37, No 12, 1971,
pp 1503—1505

Abstract : A method has been developed for determining the pla-
sticity and strength of powder-metallurgy materials directly on
the fabricated articles, on bushings. The method is based on
impressing a spherical punch into the bushing or a sample which
has been cut out from the bushing. As plasticity criterion is
considered the diameter of the impression produced on the spe-
cimen by loading it up to development of the first crack. The
developed special testing device is illustrated. Parallel with
the impression, experiments of determining the plasticity by
tension were carried out. Both methods provide quite satisfac-
tory results, but the impression method is more technological.
Three illustr., one table, three biblio. refs.
1/1

USSR

UDC 621.382.002

TSYRLIN, A.D., KLIMKOVICH, A.V., LAVRISHCHEV, V.P.

"Use Of A Method Of Determining Luster For Evaluation Of Microprofile Of The Surface Of Photoresist Films Applied In Electrostatic Field"

Translation: A method is considered for evaluating the character of the micro-profile of the surface of films of photoresist obtained by sputtering of its solutions in an electrostatic field, by the magnitude of the luster [blesk] of the system film--substrate. The connection is shown between the parameters of the microprofile of the film source and the magnitudes of the relative decrease of the luster corresponding to them. Summary.

1/1

USSR

LAKHTIN, YU. M., and TSYRLIN, E. S.

UDC 669.14.018.295:539.4

"Nitriding of Martensite Aging Steel"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 101-105

Abstract: Nitriding of N18X9M5T steel at 450°C for 24 hours produced non-brittle diffused layers up to 0.25 mm thick and high surface hardness up to 900 HV$_5$. An increase of the nitriding temperature to 560°C decreased the surface hardness to 700 HV$_5$ and hardness of the alloy inner layers from 560 to 430 HV$_5$. An increase of the nitriding time to 48 hours at 450°C decreased only slightly the surface hardness (from 900 to 860-870 HV$_5$). Nitriding at 500°C for 24 hours produced a surface hardness of 830 HV$_5$; surface hardness decreased by 100 HV$_5$ when nitriding time was extended to 48 hours. Changes in the nitriding time at the same temperature had little effect on the hardness of the steel inner layers. The thickness of the surface nitrided layer was related to the nitriding duration by the parabolic nature at all temperatures. The best nitriding regimes for this steel are: 500°C for 24 hours, and 450°C for 48 hours. Nitriding had little effect on steel strength but it decreased the impact toughness. Stress concentrators were practically unaffected by nitriding. Corrosion properties of this steel were the same as in steel subjected to aging.
1/1

1/2   025
UNCLASSIFIED
TITLE--PAINT AND VARNISH COATINGS APPLIED BY ELECTRODEPOSITION -U-
PROCESSING DATE--04DEC70

AUTHOR-(05)-TIKHONOVA, R.M., TSYRLIN, M.I., ZHURAVLEV, A.K., ROZNO, L.I.,
KISTANOVA, G.A.
COUNTRY OF INFO--USSR

SOURCE--AVTO. PROM. 1970, 36(4), 39-41

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELECTRODEPOSITION, PAINT, VARNISH, TEST METHOD, AUTOMOBILE,
CORROSION RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0773
STEP NO--UR/0113/70/036/004/0039/0041
CIRC ACCESSION NO--AP0136210
UNCLASSIFIED

CIRC ACCESSION NO--AP0136210   UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   A TESTING METHOD WAS DEVELOPED FOR
DETG, THE CORROSION RESISTANCE OF AUTOMOTIVE COATINGS.   THE SAMPLES WERE
EXPOSED TO A SPRAY OF 3PERCENT NACL SOLN. AT 40-50DEGREES IN A SPECIAL
CHAMBER. SINGLE ENAMEL LAYERS DEPOSITED ON PHOSPHATIZED METAL BY THE
ELECTROSTATIC METHOD WERE CORRODED FASTER THAN THE COATINGS OBTAINED BY
THE CONVENTIONAL SPRAYING OF A GROUNDCOAT FOLLOWED BY AN ENAMEL.
FACILITY: GORK. AVTOZAVOD, GORKI, USSR.

PROCESSING DATE--04DEC70

UNCLASSIFIED

USSR   UDC 619:616.9-022.6 + 636.1 + 636.2 + 636.4 + 636.52/.58

POGULYAYEVA, L. V.; TSYRO, V. A.

"Serological Examination of Swine With Ornithosis Antigen on Farms in Omsk Oblast"

V sb. Sb. nauchn. rabot. Sib. n.-i. vet. in-t. (Siberian Scientific Research Veterinary Institute -- Collection of Scientific Works), No 17, 1970, pp 223-226 (from RZh-58. Zhivotnovodstvo i Veterinariya, No 4, Apr 71, Abstract No 4.58.569)

Translation: In 1965 and 1967, serological examination with ornithosis antigen of 353 swine from various Omskaya Oblast farms showed the presence of inhibitor antibodies for viruses of the OLT /ornithosis-lymphogranuloma-trachoma/ group in titers of 1:4 to 1:16 in 71 swine (20.1%). Positive reactions were obtained for 18.6% of swine 2-4 months old, for 47.9% of swine 3.5 months old, for 59.5% of the 6-8 month age group, and for 7.7% of adult swine. In 23 healthy young pigs aged 2.4 months, a negative complement fixation inhibition reaction was obtained. The infectivity of swine with OLT-group viruses was established by these studies, the first ones in Western Siberia.

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USSR   UDC 619:616.9-022.6 + 636.1 + 636.2 + 636.4 + 636.52/.58

TSYRO, V. A.

"Ornithosis of Poultry in the Omsk Region"

V sb. Sb. nauchn. rabot. Sib. n.-i. vet. in-t. (Siberian Scien-
tific Research Veterinary Institute -- Collection of Scientific
Works), No 17, 1970, pp 227-231 (from RZh-Zhivotnovdstvo i
Veterinariya, No 2, Feb 71, Abstract No 2.58.586)

/No abstract/

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1/2   010   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--EVALUATION OF AN AUTOMATIC PLATE AND FRAME FILTER PRESS WITH
  MECHANIZED PLATE CLAMPING -U-
AUTHOR--ZAMBROVSKIY, V.A., ANIKEYEV, YU.V., TSYS, V.A., MUKHIN, I.L.

COUNTRY OF INFO--USSR

SOURCE--SAKH. PROM. 1970, 44(2), 22-7

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, CHEMISTRY

TOPIC TAGS--FILTRATION, PRESS, CHEMICAL AGENT FILTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0155   STEP NO--UR/0339/70/044/002/0022/0027

CIRC ACCESSION NO--AP0103834
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0103834   UNCLASSIFIED   PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN AUTOMATIC PLATE AND FRAME
FILTER PRESS WITH A FILTERING AREA OF 2.5 M PRIME2 IS DESCRIBED AND ITS
PERFORMANCE IN A SUGAR FACTORY UNDER VARIED OPERATING CONDITIONS IS
DETAILED. A TYPICAL CYCLE OF 28 MIN CONSISTED OF LIQUOR FLOW 17.2,
WATER WASH AND COMPRESSION 8.2, AND NONPRODUCTIVE (CLEANING) OPERATIONS
2.6 MIN. SUGAR LOSSES WERE REDUCED TO 0.7PERCENT; CAKES CONTG.
30PERCENT H SUB2 O WERE PRODUCED; BY THE USE OF A PERLITE FILTER AID,
65-8PERCENT DENSE SIRUPS WERE FILTERED AT 8.9 1.-M PRIME2-MIN.

UNCLASSIFIED

USSR

UDC 62-525

TSYRUL'NIKOV, I. M., and KURATTSEV, L. YE.

"An Experimental Design of Pneumatic Instrument Circuits for Active Monitoring in Machine Building. Using Membrane Elements of Pneumatic Automation"

V sb. 12-E Vses. soveshch. po pnevmoavtomatike, 1973, Ref. dokl. Ch. 1 (12th All-Union Conference on Pneumoautomatics, 1973. Reference Reports, part 1 -- collection of works), Moscow, 1973, pp 29-32 (from RZh-Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73, Abstract No 11 A468)

Translation: This is a report on activities in improving the speed and extending the functional capabilities of pneumatic membrance elements as applied to systems of active dimension monitoring in machine building. It is noted that the low speed of the Universal System of Elements of Industrial Pneumoautomation elements prevent their application in monitoring systems.

The chambers between the throttle valves of the new elements are smaller, and they have additional power amplification stages, which feature improves their speed to a level close to that of electronic dimension monitoring instruments (the time constant of the measurement circuit is about 0.1 seconds).

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USSR

Active dimension monitoring circuits for uncentered polishing and hold-ing machines made completely of pneumoelements are given. The linear error of the circuit does not exceed 1 micron. Tests of the circuit for reliability showed 2.5×10^6 operations in comparison with 3×10^5 operations for a circuit with electric elements. Two illustrations.
    Abstract by V. V.

2/2

USSR

YELINA, A. S., MUSATOVA, I. S., TSYRUL'NIKOVA, L. G., All-Union Scientific
Research Chemical-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

UDC 547.863.1'781'861.07

"N-Oxides of Imidazo[4,5-b]quinoxalines and Imidazo[4,5-b]pyrazines"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, 1972, pp 1266-1270

Abstract: The synthesis of mono and di-N-oxides of methyl derivatives of
imidazo-[4,5-b]quinoxaline and imidazo[4,5-b]pyrazine is described. High
reactivity of the 20methyl group in N-oxides of 20methylimidazo[4,5-b]-
-quinoxaline was found by comparison with the corresponding unoxidized
derivative. No noticeable antibacterial activity was detected. Experimental
precedures and results are presented for the synthesis of 4-N-oxide of 2-
-methylimidazo[4,5-b]quinoxaline (II) and 4,9-di-N-oxide of 2-methylimidazo
[4,5-b]quinoxaline (III), the conversion of II and III into the 4-N-oxide
of 3-amino-2-hydroxyquinoxaline (IV) and 1,4-di-N-oxide of 2-amino-3-hydr-
oxyquinoxaline (V), the N-oxidation of 2-methylimidazo[4,5-b]pyrazine (VIa),
N-oxidation of 5,6-dimethylimidazo[4,5-b]pyrazine (VIb), the synthesis of
1-benzyl-5,6-dimethylimidazo[4,5-b]pyrazine (IX), mono-N-oxide of 1-benzyl-
-5,6-dimethylimidazo[4,5-b]pyrazine (X), 4-N-oxide of 2-styrylimidazo

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USSR

YELINA, A. S., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 9,
1972, pp 1266-1270

[4,5-b]quinoxaline (XI), 4,9-di-N-oxide of 2-styrylimidazo[4,5-b]quinoxaline
(XII), 2-(o-hydroxystyryl)imidazo[4,5-b]quinoxaline (XVII), 4-N-oxide of
2-(o-hydroxystyryl)imidazo[4,5-b]quinoxaline (XVIII), the oxidation of com-
pounds I and II by selenium dioxide, deoxidation of the styryls XIII and XI
by potassium manganate, the reaction of 2,3-diaminoquinoxaline with dimethyl-
formamide and the synthesis of 2-methylimidazo[4,5-b]quinoxaline.

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USSR

UDC 616.988.75-036.22.1969.(470.62)

KLOKOVA, G. F., TSYS', N. S., and PODVARKO, A. G., Chair of Infectious Diseases, Kuban Medical Institute, and Second City Hospital, Krasnodar

"Clinical Characteristics of Influenza at Krasnodar"

Moscow, Sovetskaya Meditsina, No 6, Jun 71, pp 132-133

Abstract: During the first quarter of 1969 there was an increased incidence of influenza at Krasnodar. In the epidemic in question, the number of cases increased rapidly and then decreased slowly. During Jan-Mar 1969, 527 adults with influenza were treated at the Clinic of Infectious Diseases. The hemagglutination inhibition reaction was carried out with sera of 298 patients. It was positive in 43.9% of the cases; diagnostically reliable titers with the virus A2, A2 (Hong-Kong), and B were found in 90, 21, and 5 cases, respectively. A detailed study was carried out of 131 cases of serologically diagnosed influenza and, on the basis of the case histories, of 3 cases of patients who died. A comparison of the clinical course of influenza in 1967 with that in 1969 showed that the 1969 epidemic was more severe. Influenza in a severe form was encountered in 21.6% of cases in 1969 vs. 3.3% in 1967. Complications developed in 46.2% of cases in 1969 vs. 34.7% in 1967. Of patients who were hospitalized, 3% (4 of 134 patients) died in 1969, while none died in 1967.
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USSR:

KLOKOVA, G. F., et al., Sovetskaya Meditsina, Vol 34, No 6, Jun 71, pp 132-133

The clinical symptoms observed in 1969 and 1967 did not differ significantly; there were a brief period of fever and an acute toxic condition that developed within 1-2 days.

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UNCLASSIFIED

TITLE—CLINICO LABORATORY PECULIARITIES OF CURRENT DYSENTERY ACCORDING TO MATERIALS OF KRASNODAR SECOND CITY HOSPITAL —U—

PROCESSING DATE—30OCT70

AUTHOR-(05)-KLOKOVA, G.F., PODVARKO, A.G., TSYS, N.S., ANOSHINA, L.I., GONCHAROVA, YE.I.

COUNTRY OF INFO—USSR

SOURCE—ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6, PP 37-40

DATE PUBLISHED————70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—DYSENTERY, ANTIBIOTIC RESISTANCE, STREPTOMYCIN, CHLORAMPHENICOL/(U)BIOMYCIN ANTIBIOTIC

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—3001/0833

STEP NO—UR/0016/70/000/006/0037/0040

CIRC ACCESSION NO—AP0126510

UNCLASSIFIED

UNCLASSIFIED

2/2   017
CIRC ACCESSION NO--AP0126510
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF 258 CASE
HISTORIES OF PATIENTS SUFFERING FROM DYSENTERY WITH BACTERIOLOGICALLY
CONFIRMED DIAGNOSIS: CLINICO LABORATORY INDICES OF THE DISEASE WERE
COMPARED IN 1957 (122 PATIENTS) AND IN 1967 (136 PATIENTS). A
PREVALENCE OF SONNE DYSENTERY IN 1967 WAS NOTED (80PERCENT); IT DIFFERED
FROM FLEXNER DYSENTERY BY A MILDER COURSE, AN INCREASE IN THE NUMBER OF
ATYPICAL, LATENT FORMS AND OF FORME FRUSTE, AND ALSO BY A LESSER
INCIDENCE OF THE CHANGE TO CHRONIC FORM. IT APPEARED THAT 59.5PERCENT
OF ALL THE SONNE STRAINS WERE RESISTANT TO CHLORAMPHENICOL, BIOMYCIN AND
STREPTOMYCIN.   FACILITY: KUBANSKIY MEDITSINSKIY INSTITUT IM.
KRASNOY ARMIII I GORODSKAYA BOL'NITSA NR 2, KRASNODAR.

UNCLASSIFIED

USSR

UDO 621.373.029.7

BABAYEV, I.K., TSYS', S.N.

"Saturation Of The Specific Characteristics Of The Active System $'CO_2 + Air\ (N_2) + He'$"

Abstract: The connection between amplification and the gas temperature is experimentally determined, and a separate study is made of the dependences of the absolute magnitudes of the populations of the upper and lower operating levels. 2 fig. 13 ref. Received by editors, 3 December 1971.

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UDC 547.728.1'756:542.944.1

USSR

TROFIMOV, F. A., TSYSHKOVA, N. G., and GRINEV, A. N., Scientific Research
Institute of Medicinal Radiology, Acad. Sc. USSR, All Union Scientific
Chemical Pharmaceutical Research Institute Imeni S. Ordzhonikidze, Moscow

"2-Bromomethyl Derivatives of Benzofuran and Indole and Their Reactions
With Some Nucleophilic Reagents"

Abstract: Bromination of 2-methyl-3-carbethoxy-5-methoxybenzofuran with
N-bromosuccinimide in presence of benzoyl peroxide and light yielded 2-
bromomethyl-3-carbethoxy-5-methoxybenzofuran, m.p. 80-81°. Under analogous
conditions, 1,2-dimethyl-3-carbethoxy-5-methoxyindole yielded only 1,2-
dimethyl-3-carbethoxy-5-methoxy-6-bromoindole, m.p. 164-165°, which upon
further reaction with N-bromosuccinimide gave 1-methyl-2-bromomethyl-3-
carbethoxy-5-methoxy-6-bromoindole, m.p. 141-142°. The bromomethylated
products react easily with mercaptans, thiophenols and secondary amines
yielding 2-alkyl(aryl)thiomethyl and 2-dialkylaminomethyl derivatives of
benzofuran and indole.

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1/2   012

UNCLASSIFIED

TITLE--MODERN STATE OF THE THEORY OF CYCLOOLEFIN OXIDATION -U-   PROCESSING DATE--04DEC70

AUTHOR-(02)-SYROV, A.A., TSYSKOVSKIY, V.K.

COUNTRY OF INFO--USSR

SOURCE--USP. KHIM. 1970, 39(5), 817-38

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIC GROUP, ALKENE, OXIDATION, CARBONYL COMPOUND, CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605019/811 STEP NO--UR/0074/70/039/005/0817/0838

CIRC ACCESSION NO--AP0140910

UNCLASSIFIED

CIRC ACCESSION NO--AP0140910   UNCLASSIFIED   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. A REVIEW WITH 182 REFS. THROUGH
1968, COVERING OXIDN. OF CYCLOOLEFINS WITH O, OXIDN. TO CARBONYL
COMPDS., CATALYSIS OF OXIDN. BY SALTS OF METALS SUCH AS PD, AU, HG OR
TL, AND OXIDN. BY ELECTROPHILIC REAGENTS.
NAUCH.-ISSLED. INST. NEFTEKHIM. PROTSESS., LENINGRAD, USSR.   FACILITY: VSES.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--02OCT70

1/2   018
TITLE--THERMAL DECOMPOSITION OF PRODUCTS OF THE REACTION OF OZONE WITH
CYCLOOLEFINS -U-
AUTHOR-(03)-RAZUMOVSKIY, S.D., YURYEV, YU.N., TSYSKOVSKIY, V.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(2), 254-60

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DECOMPOSITION, OZONE, DICARBOXYLIC ACID, ALDEHYDE,
HEXENE, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0214   STEP NO--UR/0366/70/006/002/0254/0260

CIRC ACCESSION NO--AP0113153
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0113153
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF O SUB3 WITH
CYCLOHEXENE (I) OR CYCLOOCTENE (II) GAVE POLYMERIC OZONIDES OF I OR II
(IA OR IIA, RESP.) IN 95-6PERCENT YIELDS AND 3-4PERCENT MONOMERIC
OZONIDES (IB OR IIB, RESP.). IN THE OZONIZATION OF 1,5,CYCLOOCTADIENE,
ONLY POLYMERIC OZONIDES WERE FORMED. THERMAL DECOMPN. OF THE MONOMERIC
OR POLYMERIC OZONIDES GAVE THE SAME PRODUCTS (DICARBOXYLIC ACIDS,
DIALDEHYDES, AND DIALDEHYDE CARBOXYLIC ACIDS), WHICH DEMONSTRATED THE
CYCLIC NATURE OF BOTH TYPES OF OZONIDES. THE DECOMPN. OF 1,BUTENE
OZONIDE GAVE ONLY MONOFUNCTIONAL PRODUCTS (HCHO, ACH, AND ACOH). THE
ACTIVATION ENERGY OF IA AND IB THERMAL DECOMPN. WAS 34 PLUS OR MINUS 1.5
KCAL-MOLE, I.E., CLOSE TO THAT OF 1,HEXENE OZONIDE (32 PLUS OR MINUS 2
KCAL-MOLE). THE THERMAL DECOMPN. OF IA AND IB INVOLVED THE FORMATION OF
INTERMEDIATE OLIGOMERIC AND POLYMERIC PRODUCTS, SUCH AS OCH(CH SUB2)
SUB4 CH(OME)OOH AND OCH(CH SUB2) SUB4 CH(OME)OO(CH(OH)(CH SUB2) SUB4
CH(OME)OO) SUBN. THE MECHANISM OF PRODUCT FORMATION WAS DISCUSSED.

USSR

TSYTOVICH, N. A.

"On Geomechanics"

Moscow, Osnovaniya, fundamenty i mekhanika gruntov, No. 5, 1971, pp 1-2

Abstract: The science of geomechanics is defined as the study of mechanical
processes occurring in the earth's crust due to natural factors such as gravita-
tional fields, hydrodynamic pressures, seismic effects, etc., and human activities
such as the construction of high dams, construction over large areas, extensive
pumping of subterranean water, etc. It is proposed that geomechanics should
include the following five divisions: (1) global and regional geomechanics,
including purely geological problems such as the movement of continents and tec-
tonic problems and also general engineering problems that arise in construction
on a large scale; (2) the mechanics of large crystalline rock which is of great
importance in hydroengineering construction and for the construction of heavy
high structures placed on rock foundations; (3) the mechanics of multiphase
ground masses, the knowledge of which is necessary for the stable construction
of all forms of buildings on sandy and clay soils; (4) the mechanics of organic-
mineral masses and organic masses such as silt, peat, etc., knowledge of which

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USSR

TSYTOVICH, N. A., Osnovaniya, fundamenty i mekhanika gruntov, No. 5, 1971, pp 1-2

is necessary for stable strong construction on weak sand and peat soils found extensively near large rivers, especially in their deltas; (5) the dynamics of lithification of deposits necessary for evaluating compaction processes. The author feels that the new field of geomechanics should be developed over this broad area in order to make quantitative estimates of the conditions necessary for erecting structures with complete assurance of strength and stability.

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USSR

GINZBURG, V. L., PTUSKIN, V. S., and TsYTOVIch, V. N., Physical Institute imeni P. N. Lebedev, Academy of Sciences of the USSR

"On the Role of Plasma Effects in the Propagation and Isotropization of Cosmic Rays in the Galaxy"

Abstract: This work is based on FIAN Preprint No 161, 1972, by the same authors, which contains more detailed calculations and discussion. The present article communicates only some basic results of this work. The basic purpose of this study is to consider the waves developed in the movement of charged particles; the interaction of those waves with the particles; the effects of other waves, externally generated; and the interactions among the waves. The overall result is to introduce consideration of plasma effects in the standard diffusion model of cosmic radiation.

Three basic types of waves are considered: magnetohydrodynamic, whistlers, and Langmuir waves. When cosmic rays move with an average velocity exceeding the phase velocity of the waves, instabilities arise and there is a "maser" expansion of the oscillation due to anisotropy in the angular distribution function of cosmic rays.

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USSR

GINZBURG, V. L., et al., Izvestiya Akademii Nauk SSSR, Vol 37, No 6, 1973, pp 1150-1154

To develop waves in interstellar plasma, the increment must exceed the decrement due to damping. Damping of MHD waves is due to collisions between ions and neutral particles, while the other two types are damped by electron-ion collisions.

Formulas are given in the article for calculating the change in direction of particles subject to these turbulent waves. These results can be used, in turn, to make an approximate determination of the coefficient of diffusion.

Preliminary evaluations show that nonlinear processes cannot be ignored in the relaxation of the anisotropic distribution of cosmic rays of a single order. Further, there is still no rigorous theory of MHD turbulence, particularly in a collision plasma. However, analysis indicates that whistlers and Langmuir waves are not likely to arise when the anisotropy of the radiation is low, so that MHD waves must be most significant in reducing low anisotropy, except for cases in which whistlers and Langmuir waves may develop due to external sources.

On the other hand, analysis shows that the spectrum that is attained cannot be established solely by effects due to the cosmic rays themselves, and that external sources of sufficient power to provide the necessary MHD waves 2/3

USSR

GINZBURG, V. L., et al., Izvestiya Akademii Nauk SSSR, Vol 37, No 6, pp 1150-1154

are not available. Other mechanisms, such as circulation in magnetic fields or scattering in magnetic anomalies, must be assumed. A theoretical study of MHD turbulence in collision plasmas and the possibility of shock wave formation would be valuable. There may also be new types of waves in a mixture of relativistic and nonrelativistic gases.

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USSR

GINZBURG, V. L. and TSYTOVICH, V. N.

"Theory of Transition Radiation in a Nonstationary Medium"

Abstract: This paper is based in part on an earlier article (V. L. Ginzburg, et al, ZhETF, 16, 15, 1946) in which transition radiation was first considered for the case of a uniformly moving, charged particle intersecting the abrupt boundary of an interface between two media. In the present paper, the problem of transition radiation in a nonstationary medium is considered for an abrupt change in the index of refraction with time, and the applicability region of an approximation in the change of index of refraction in a dispersing medium is discussed. The time of formation of the radiation is evaluated, and the radiation effects of an ultra-relativistic particle are examined in detail. The work done by the radiation force on the radiating particles is computed and the effect of mass renormalization of the particle in a medium with varying parameters is discussed. A comparison is made of this type of radiation with ordinary transition radiation for this interface.
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USSR

UDC 533.9

TSYTOVICH, V. N., and CHIKHACHEV, A. S.

"On the Structure of Exponential Spectra of Relativistic Electrons in a Turbulent Plasma"

Moscow, Fizika Plazmy -- Sbornik Statey Moskovskogo Inzhenerno-Fizicheskogo Instituta, No 3, 1971, pp 97-103

Abstract: In previous articles the authors considered the problem of the acceleration of relativistic electrons in a turbulent plasma during their interaction with electromagnetic radiation. It was shown that the solution of the self-consistent problem for waves and electrons gives an exponential energy spectrum $\sim 1/\varepsilon^{\gamma}$ for electrons with the exponent γ, which is a function of the ratio $\varkappa$ of the plasma energy density W to the plasma particle energy density, $\varkappa = W/n_0 mc^2$, and the ratio ξ of the gyrofrequency $\omega^{(0)} = eH/mc$ to the plasma frequency $\omega_{pe} = \sqrt{4\pi n e^2/m_e}$, $\xi = eH/mc\omega_{pe}$. These spectra

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USSR

TSYTOVICH, V. N., and CHIKHACHEV, A. S., Fizika Plazmy -- Sbornik Statey
Moskovskogo Inzhenerno-Fizicheskogo Instituta, No 3, 1971, pp 97-103

are generated only up to those maximum energies whose values are determined
from radiation cutoff conditions.

The acceleration of relativistic electrons is due to the action of
magnetic braking and plasma mechanisms. The relation between particle energy
and frequency is different for these two mechanisms. It is known that inflection
points are observed in most spectra of radiation sources. They can be ex-
plained by changes resulting from energy losses due to the radiation of rela-
tivistic electrons in the propagation of electrons from a generation source.
From considerations concerning the two acceleration mechanisms, it follows
that there is also another possibility, involving the fact that during parti-
cle acceleration inside the sources the above-indicated inflection points are
formed in the spectra of the accelerated particles, and spectra of this kind
are injected in the space outside the sources. The present article is devoted
to an analysis of this question. It is shown that the particle spectra most

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USSR

TSYTOVICH, V. N., and CHIKHACHEV, A. S., Fizika Plazmy -- Sbornik Statey
Moskovskogo Inzhenerno-Fizicheskogo Instituta, No 3, 1971, pp 97-103

often are not exponential but are close to exponential. This corresponds
to observed results. In view of this, great interest attaches to the
numerical solution of the spectra problem without the use of strong inequal-
ities, which the authors are forced to use in the present article.

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USSR   UDC: 553.951.7

TSYTOVICH, Vadim Nikolayevich

TEORIYA TURBULENTNOY PLAZMY (Theory of a Turbulent Plasma),(book)
Moscow, "Atomizdat", 1971, 424 pp, illus, biblio, 2 775 copies
printed

Abstract:The book outlines the basic physical concepts of plasma
turbulence and methods of describing it. The author considers
an extensive class of problems involving turbulent heating,
stochastic acceleration, the spectra of fast particles ac-
celerated by turbulent pulsations, passage of electromagnetic
waves through a turbulent plasma, emission and low-frequency
properties of a turbulent plasma.
    The monograph has 53 illustrations, one table, and a
bibliography of 318 titles.

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USSR

TSYTOVICH, V. N., TEORIYA TURBULENTNOY PLAZMY, Moscow, "Atom-
izdat", 1971

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TSYTOVICH, V. N., TEORIYA TURBULENTNOY PLAZMY, Moscow, "Atom-
izdat", 1971

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TSYTOVICH, V. N., TEORIYA TURBULENTNOY PLAZMY, Moscow, "Atom-izdat", 1971

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USSR

TSYTOVICH, V. N., TEORIYA TURBULENTNOY PLAZMY, Moscow, "Atom-izdat", 1971

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USSR

TSYTOVICH, V. N., TEORIYA TURBULENTNOY PLAZMY, Moscow, "Atom-izdat", 1971

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TSYTOVICH, V. N., TEORIYA TURBULENTNOY PLAZMY, Moscow, "Atom-izdat", 1971

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USSR

TSYTOVICH, V. N., TEORIYA TURBULENTNOY PLAZMY, Moscow, "Atom-izdat", 1971

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USSR

TSYTOVICH, V. N.,.TEORIYA TURBULENTNOY PLAZMY, Moscow, "Atom-
izdat", 1971

9/9

TITLE--SPECTRUM OF RELATIVISTIC PARTICLES ACCELERATED BY PLASMA TURBULENCE
-U-

AUTHOR-(02)-TSYTOVICH, V.N., CHIKHACHEV, A.S.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 3, 1970, P. 479-482

DATE PUBLISHED-------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, PHYSICS

TOPIC TAGS--SPECTRUM, RELATIVISTIC PARTICLE, COSMIC RAY, PLASMA PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/C01 STEP NO--UR/0033/70/047/003/C479/0482

CIRC ACCESSION NO--AP0140259
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0140259

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE RELATIVISTIC ELECTRON SPECTRA OF COSMIC RAYS ACCELERATED BY PLASMA TURBULENCE. THE EXPONENTIAL PROPERTY OF THESE SPECTRA IS DISCUSSED. THE NATURE OF A SINGULARITY CONTAINED IN A SOLUTION TO AN EQUATION DESCRBING THE BEHAVIOR OF THESE SPECTRA IS EXAMINED.   FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC 622.011.43

GRITSKO, G. I., AKIMOV, V. S., TSYTSARKIN, V. N.

"Description of the Mine Shoring Operation Using Structural Rheological Models"

V sb. Gorn. davleniye v kapital'n. i podgotovit. vyrabotkakh Kuzbassa (Rock Pressure in Major and Whole Workings in the Kuzbass-collection of works), Novosibirsk, "Nauka", 1969, pp 99-104 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V665)

Translation: An analytical description of the performance of timbering is realized by using a rheological model of a standard linear body, and by bringing in the

equation of state

$$\sigma + \alpha \frac{d\sigma}{dt} = b + a_1 \frac{d\varepsilon}{dt}$$

and its particular cases. Here σ = stress, ε = deformation, a, a_1, and b = constants.

M. N. Rozovskiy

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USSR

UDC 621.382.019.3

TSYTSARKIN, YU.V.

"Stability And Reliability Of Semiconductor Devices Under Irradiation Conditions"

Tr. Mosk. aviats. in-ta (Works Of The Moscow Aviation Institute), 1970, Issue 194, pp 65-69 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B542)

Translation: In this survey methods are considered for evaluating the effect of ionizing radiation on the characteristics of semiconductor devices, beginning with the work of one of the first investigators Lofersk, the method of discrete models of Linville and Gibbons, methods on the basis of Webster's correlation for the amplification factor of transistors, and in particular certain statistical methods in the investigations of NASA (USA). The most complete presentation provides an analysis with the aid of a computer on the basis of the Shockley--Hall--Reed model, taking the following into account: 1) generation--recombination through defects produced by chemical and thermodynamical methods; 2) impact ionization; and 3) exterior generation under the influence of radiation. In averting computing difficulties it is possible to use approximate methods of analysis (method of similarity). 26 ref. I.B.

1/1

USSR

UDC 669.295:621.77

TSYTSENKO, V. A., BAZHANOV, Yu. M., and SUKHOROSOV, V. V.

"Production of Titanium Tubes by Argon Arc Welding"

Abstract: The described production of tubes (32 x 2 to 102 x 2 mm) by argon arc welding uses a band of VT1-0 alloy as initial skelp which before welding is cut on disc shears and etched in a solution of hydrochloric acid with ammonium fluoride. The welding is done in a special semi-hermetic chamber filled with type A argon to protect seams from oxidation. Test results of argon-arc-welded tubes are discussed by reference to microstructures and mechanical properties which show that the tensile strength of welded tubes is somewhat higher than of the initial band. The advantage of welded tubes in comparison with seamless tubes consists in their lower cost and sufficiently high reliability. Two illustr., two tables.

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TSYV'YAN-SHALAGINOVA, D. S.

NEW BOOK DEALS WITH MORPHOLOGY OF INTERNAL ORGANS AS RELATED TO SOME STRESS
FACTORS

[Book review by D.S. Tsyv'yan-Shalaginova, Leningrad, Arkhiv Anatomii,
Gistologii i Embriologii, Russian, No 1, 1971, pp 126-127]

This monograph deals with the morphological changes in some internal
organs in the course of adaptation to factors that are designated in the
special literature as "extreme" [stress] factors. The work consists of
three chapters, on the 150 pages of which are described the results of
investigation of histovascular correlations in a number of organs under the
influence of: 1) generalized vertical vibration; 2) transverse acceleration,
and 3) artificial ultraviolet radiation. It must be noted that while the
influence of the first two factors is presently being widely investigated
by biologists, physiologists, and hygienists, there are still obviously
insufficient morphological works on this subject which is so timely for
contemporary medical science. The results of investigations of the authors'
lar chapter should be construed as a continuation of the authors' earlier**
works where it was noted that when studying mountain factors it is imperative
to take into consideration oxygen deficiency, ultraviolet radiation, strong
ionization, as well as sharp temperature, humidity fluctuations, etc. In
developing these issues it became necessary to define the role of ultraviolet
radiation and temperature fluctuations in onset of the morphological changes
mentioned.

Using extensive experimental material (150 dogs and 230 rabbits), the
authors investigated the angioarchitectonics of the heart, lungs, liver,
kidneys, thyroid, and adrenals by injecting the blood stream with different
contrast media, and the lymphatic stream with Gerota's blue medium. Then
cleared preparations were made from the injected organs. The macro- and

*Morfologiya Vnutrennikh Organov pri Nekotorykh Ekstremal'nykh Vozdeystviyakh
(Morphology of Internal Organs as Related to Some Stress Factors), by Ya.A.
Rakhimov, L.Ye.Etingen, V.Sh.Belkin, and A.Kh.Ostpov, Dushanbe, Donish Publish-
ing House, 1971.
**Morfologiya Nekotorykh Vnutrennikh Organov v Usloviyakh Vysokogor'ya (Mor-
phology of Some Internal Organs at High Altitudes), by Ya.A. Rakhimov, L.Ye.
Etingen, V.Sh. Belkin, M.U. Usmanov, Dushanbe, 1968.

- 160 -

1/2   013
UNCLASSIFIED
PROCESSING DATE--13NOV70
TITLE--INFLUENCE EXERTED BY ETHYLENEDIAMINETERTRAACETIC ACID (EDTA) ON THE
ANTICOAGULANT PROPERTIES AND DYNAMICS OF SCANDIUM EXCRETION FROM THE
AUTHOR-(05)-LAKIN, K.M., ZIMAKOV, YU.A., MENKOV, A.A., BOCHAROVA, R.I.,
ISZYU, N.P.
COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 87-90

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SCANDIUM, RABBIT, BLOOD COAGLATION, KIDNEY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1157
STEP NO--UR/0390/70/033/001/0087/0090
CIRC ACCESSION NO--AP0115176
UNCLASSIFIED

CIRC ACCESSION NO--AP0115176   UNCLASSIFIED   PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SC ACETATE ADMINISTERED I.V. TO
RABBITS AT 20 MG-KG DECREASED BLOOD COAGULATION, WITH THE MAX. EFFECT
ACHIEVED AFTER 2 HR AND LASTING FOR GREATER THAN 6 HR. THE
ANTICOAGULANT PROPERTIES WERE LESS THAN THOSE OF THE LANTHANIDES AND Y.
SC BLOOD CONCN. GRADUALLY DECREASED FOR THE 1ST FEW DAYS AFTER
ADMINISTRATION, AND AFTER 1 DAY SIMILAR TO 20PERCENT OF THE ELEMENT HAD
BEEN EXCRETED THROUGH THE KIDNEYS. EDTA COMBINED WITH SC ACETATE HAD
ALMOST NO EFFECT ON THE BLOOD SC CONCN, BUT SHARPLY INCREASED ITS RENAL
EXCRETION AND SHARPLY REDUCED ACUTE TOXICITY AND ANTICOAGULANT ACTION.
    FACILITY: TSENT. NAUCH.-ISSLED. LAB., MOSK. MED. INST. IM.
PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

Electricity & Magnetism

USSR

VOROB'YEV, A. A., YEVDOKIMOV, O. B., and TUBALOV, N. P., Tomsk Polytechnical
Institute imeni S. M. Kirov

"Effect of Overcharge of a Dielectric Charge by an Electron Beam"

Leningrad, Fizika Tverdogo Tela, No 12, Dec 71, pp 3691-3692

Abstract: It is shown for the first time that a change in the sign of the
effective space charge can occur in plexiglass in the course of time. It
is noted that it was known that a negative space charge of thermally in-
sulated electrons is produced upon the irradiation of high-ohmic dielectrics
by fast electrons, and this appears in the development of discharge diagrams
and is applied in studying the electrical properties of dielectrics. Plexi-
glass discs 4.5 mm thick and coated with 5-micron aluminum foil were ir-
radiated by 0.8-1.2 Mev electrons at a current density of 0.5 µamp/cm^2
for 15-20 sec, and then the space charge was tested using the effect of
an electric field on the passage of beta particles through a dielectric.
The charge samples were periodically irradiated by beta particles from a
strontium-iridium source, and the number of passing beta particles was
measured. The figure is given showing the relative change in the number
of passing beta particles due to the electric field as a function of time
1/2

USSR

VOROB'YEV, A. A., et al., Fizika Tverdogo Tela, No 12, Dec 71, pp 3691-3692

after irradiation. The figure shows that the change in sign of the effective space charge is observed if the maximum in the distribution of the stopped electrons shifts to one of the surfaces of the plate. In this case a positive space charge arises in the region of the dielectric not occupied by the negative space charge due to injection from the surface. Overcharge is attributed to leakage of the negative space charge more rapidly than leakage of the positive space charge. The observed overcharge effect is related to the electric state of the plexiglass, just as in polystyrene, which, as distinct from plexiglass, does not yield an electret state and overcharge is not observed.

2/2

USSR

UDC 621.396.666(088.8)

KOTOUSOV, A. S., SERGEYEVA, N. I., TUBAL'TSEV, V. G.

"Device for Separating a Signal Against a Background of Focused Noise"

USSR Author's Certificate No 296214, filed 15 Nov 1968, published 9 Apr 1971 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D62P)

Translation: A device is introduced for separating a signal against a background of focused noise executed in the form of a rejector filter tuned to the middle frequency of the noise spectrum with automatic regulation of the transmission coefficient by means of, for example, a regulatable resistor. For approximation of the noise proofness of the signal reception against a background of fading focused noise close to optimal, the input of the device is connected to the servomechanism of the resistor via a narrow band filter which separates the noise and a rectifier. The uniformity of the spectral density of the noise power at the output of the device is insured by selection of the resonance resistance of the rejector filter and the limits of variation of the regulabable resistor from the relation $(R_{oe} + R)/R > 3-4$ where R_{oe} is the resonance resistance of the rejector filter, and R is the resistance of the regulatable resistor.

1/1

USSR

UDC   621.396.666

KOTOUSOV, A. S., SERGEYEVA, N. I., TUBAL'TSEV, V. G.

"A Device for Isolating a Signal Against a Background of Lumped Interference"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296214, division H, filed 15 Nov 68, published 12 Feb 71, p 179

Translation: This Author's Certificate introduces a device for isolating signals against a background of lumped interference. The device is made in the form of a band-elimination filter tuned to the middle frequency of the interference spectrum with automatic regulation of the transmission factor by some such means as a controlled resistor. As a distinguishing feature of the patent, the device is designed to bring the interference resistance of signal reception against a background of lumped attenuating interference close to the optimum. The input of the device is connected to the controlling element of the resistor through a narrow-band filter which isolates interference, and through a rectifier. The spectral density of the interference power at the output of the device is kept uniform by selecting the resonance resistance of the band-elimination filter and the range of variation of the controlled resistor to satisfy the relationship

1/2

USSR

KOTOUSOV, A. S., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy,
tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296214, division H,
filed 15 Nov 68, published 12 Feb 71, p 179

$$\frac{R_{oe} + R}{R} > 3\text{-}4,$$ where R_{oe} is the resonance resistance of the band-elimination
filter, and R is the resistance of the controlled resistor.

2/2

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USSR

UDC 582.264:576.809.33

TUBAYEV, T. T., VASIGOV, T., RAKHIMOV, A., and YAKUBOV, Kh. F., Division of Microbiology, Academy of Sciences Uzbek SSR

"Mass Cultivation of Scenedesmus Under the Open Sky"

Abstract: Experiments were conducted on the cultivation on a large scale under the open sky of the local mesothermal strain UA-2-6 of the alga Scenedesmus obliquus (Turp.) Kuetz., which had been isolated from the soil of irrigated fields in the vicinity of Tashkent. Cultivation was carried out on an experimental plot of the Institute of Botany, Academy of Sciences Uzbek SSR. The algae were grown on installations of a type developed at Leningrad State University. The layer thickness was 8-10 cm. The inorganic nutrient medium 04 (cf. Ye. I. Milogradova and A. M. Muzafarov, p 9, in the symposium O Proizvodstvennoy Kul'ture Odnokletochnykh Vodorosley - The Cultivation of Single-Cell Algae on a Production Scale -, Fan, Tashkent) was used. CO_2 was fed in by means of a centrifugal pump. The average daily yield of S. obliquus from May to Sep corresponded to 18.4 g dry matter per sq. m. vs. 17.2 g for Chlorella vulgaris Beyer 157. The biomass of S. obliquus contained 750.2 mg/kg
1/2

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USSR

TUBAYEV, T. T., et al, Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 43-44

carotene and crude protein 55.9, crude fat 10.4, ash 10-17, monosaccharides 0.13, maltose 1.2, dextrins 1.9, starch 2.02, hemicellulose 0.49, and cellulose 0.54. As far as the yield and the chemical composition of the biomass are concerned, S. obliquus is not inferior to Chlorella. Furthermore, it surpasses Chlorella with respect to some useful properties. S. obliquus contains chondrillasterone (0.23% of dry matter), which can be used as a starting material for the synthesis of cortisone. On the basis of the results obtained, the cultivation of S. obliquus under the open sky looks very promising.

2/2

USSR

TUBEYEV, SH. KH.

UDC 539.3

"Certain Estimates in Problems of Bending of Variable-Thickness Plates and Shells"

Dokl. Nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968-1969 g. Mosk. energ. in-t. Sekts. energomashinostroit. Podsekts. mekhan. (Papers of the Scientific-Technical Conference on Results of Scientific Research for 1968-1969, Moscow Power Institute, Power Machine Building Section, Mechanics Subsection), Moscow, 1969, pp 39-48 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V71)

Translation: Bending moments have been determined for cylindrically symmetrical bending of a round variable-thickness plate; also determined are normal displacements of closed variable-thickness shells of revolution. For the case of a round plate clamped along its contour, the problem reduces to the boundary problem for an equation with variable coefficients, the solution to which is constructed by using the Green function. The error of approximational values of bending moments, not exceeding 3 percent for the plate whose thickness varies along the radius linearly, is estimated.

The second problem considers the following: a) a cylindrical shell that is of variable thickness along the generating line, clamped along its faces, and subjected to an external distributed axisymmetric load, and b) a conical belt clamped along both contours, whose wall thickness increases along the generating

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USSR

TUBEYEV, SH. KH, Dokl. Nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968-1969 g. Mosk. energ. in-t. Sekts. energomashinostroit. Podsekts. mekhan. 1969, pp 39-48

line in the direction of the outermost contour. Estimates of errors of the approximational values of the bending functions are obtained when the shell thickness varies linearly. Bibliography: 7 entries.   V. M. Tolkachev.

2/2

1/2   013   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--SEPARATION OF LIQUID ORGANIC MIXTURES IN THERMAL DIFFUSION COLUMNS
  -U-
AUTHOR-(03)-NIKOLAYEV, B.I., NIKOLAYEV, N.I., TUBIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--TEOR. OSN. KHIM. TEKHNOL. 1970, 4(3), 432-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROCARBON SEPARATION, THERMAL DIFFUSION SEPARATION,
  CHLOROBENZENE, HEXANE, HEPTANE, CARBON TETRACHLORIDE, CYCLOHEXANE,
  TOLUENE, XYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/F08 STEP NO--UR/0455/70/004/003/0432/0435

CIRC ACCESSION NO--AP0140340
                    UNCLASSIFIED

2/2 013
CIRC ACCESSION NO--AP0140340 UNCLASSIFIED
PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LIQ. ORG. MIXTS. WERE SEPD. IN THE
2 DIFFERENT THERMAL DIFFUSION COLUMNS EACH CONSISTING OF 2 COAXIAL
TUBULAR CYLINDERS OF DIFFERENT DIAMS. AND LENGTHS: PHCL,N,HEXANE,
PHCL,N,HEPTANE, PHCL,N,OCTANE, PHCL,N,DODECANE (COLUMN 1), CCL
SUB4,N,HEXANE, CYCLOHEXANE,N, HEXANE, C SUB6 H SUB6,N,HEXANE,
PHME,N,HEXANE, O,XYLENE,N,HEXANE (COLUMN 2). THE EFFICIENCY OF SEPN. IS
DETD. BY THE DIFFERENCE IN STRUCTURES OF MOLS. OF MIXT. COMPONENTS. IF
THERE IS NO DIFFERENCE, THE EFFICIENCY OF SEPN. DEPENDS ON THE
DIFFERENCES OF MOL. WTS., B.P., AND OTHER PHYS. PROPERTIES OF MIXT.
COMPONENTS. FACILITY: NAUCH.-ISSLED. FIZ.-KHIM. INST. IM.
KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: **AP0044016**   Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 2, pp 26-30

HYGIENIC WORK CONDITIONS AND HEALTH STATUS
OF WORKERS ENGAGED IN PRODUCTION
OF TOLUENEDIAMINE

*V. S. Filatova, A. Ya. Tubina, Z. V. Sharonova, I. A. Golova,
V. I. Filina,* Dorofeyeva, Ye. D.

While obtaining toluenediamine by using Baier's method the air of work shops can be polluted with toluenediamine, methanol, o-dichlorobenzene and dinitrotoluene. The two lastly named substances could not be traced in most of the samples. The most commonly encountered TDA and methanol concentrations were below the maximally permissible levels. Materials derived from these investigations bring evidence that continuous method of TDA production with remote and automatic control of technological operations and the equipment employed for this purpose deserve high appraisal. The study of the workers' health status revealed mildly pronounced pathological shifts on the level of nervous system, blood and liver.

REEL/FRAME
19770453

1/2   022
UNCLASSIFIED
TITLE--INCREASING THE THERMOOXIDATIVE STABILITY OF SYNTHETIC OILS BY USING ANTIOXIDANT ADDITIVES -U-

PROCESSING DATE--13NOV70

AUTHOR-(02)-KOBZOVA, R.I., TUBYANSKAYA, G.S.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (4), 26-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMAL STABILITY, AMINE DERIVATIVE, SYNTHETIC OIL, ESTER, GREASE, LUBRICANT ADDITIVE, PENTAERYTHRITOL, ANTIOXIDANT ADDITIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1938

STEP NO--UR/0318/70/000/004/0026/0027

CIRC ACCESSION NO--AP0133782

UNCLASSIFIED

2/2   022

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYNTHETIC OIL MAS-35 HAD LOW SUSCEPTIBILITY TO ANTIOXIDANT ADDITIVES. FERROCENE, L6-3, AND OTHER SUCH ADDITIVES CONTG. METALS REDUCED THE STABILITY OF THE OIL. THE ADDITIVES INCREASED GREATER THAN 2, AND 3 FOLD AT 200 AND 150DEGREES, RESP., THE STABILITY OF ESTER 2 (ESTER OF PENTAERYTHRITOL) AS A DISPERSION MEDIUM FOR GREASES. THE MOST EFFICIENT ADDITIVES WERE PHENYL,ALPHA,NAPHTHYLAMINE, DISALICYLALETHYLENEDIAMINE, AND DILAURYL SELENIDE.

UNCLASSIFIED

UNCLASSIFIED

TITLE--THE STRUCTURE OF PSYCHOLOGICAL PROCESSES IN RELATION TO CEREBRAL ORGANIZATION -U-

AUTHOR-(03)-LURIA, A.R., SIMERNITSKAYA, E.G., TUBYLEVICH, B.

COUNTRY OF INFO--USSR

SOURCE--NEUROPSYCHOLOGIA 8(1): 13-19, 1970

DATE PUBLISHED------70

PROCESSING DATE--04DEC70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--CEREBRUM, EXPERIMENTAL PSYCHOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605016/B05 STEP NO--UK/0000/70/008/001/0013/0019

CIRC ACCESSION NO--AP0140653

UNCLASSIFIED

CIRC ACCESSION NO--AP0140653   UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. EVERY ATTEMPT TO ANALYZE THE
CEREBRAL ORGANIZATION OF A PSYCHOLOGICAL PROCESS HAS TO TAKE IN ACCOUNT
NOT ONLY ITS STABLE STRUCTURE BUT THE CHANGE OF THIS STRUCTURE DURING
THE ONTOGENETIC AND FUNCTIONAL DEVELOPMENT. THIS PRESUMPTION IS
ILLUSTRATED BY AN ANALYSIS OF THE DISTURBANCES OF WRITING IN 2 CASES OF
LEFT PARIETO OCCIPITAL LESIONS WHERE COPYING WAS SLOW WRITING BASED ON
OPTICO SPATIAL ANALYSIS OF LETTERS WAS IMPOSSIBLE BUT QUICK WRITING
BASED ON AUTOMATIZED WRITING SKILL REMAINED INTACT.   FACILITY:
MOSCOW UNIV., DEP. NEUROPSYCHOL., MOSCOW, USSR.

PROCESSING DATE--04DEC70

UNCLASSIFIED

EAST EUROPE

ROMANIA

Inorganic Compounds

UDC 543.3

TUCHEL, N., and VELEA, S., Faculty of Pharmacy, Medical-Pharmaceutical Institute, Bucharest

"From the Abnormal Structure of "Normal Water" to a New Modification, Polymerized Water'"

Abstract: The paper review the literature on "polymerized Water" with the formula $(H_2O)_n$. The physical properties of this "modified water" are significantly differentiated: congelation point at $-40°C$, high density (1.4 g/ccm), higher index of refraction, low vapor pressure, and stability at $500°C$. Polymerized water appears to behave as a polyelectrolyte in which base structural units are formed by a very solid bond between O-H-O iso-electronic centers with the $F-H-F^-$ ion. On the basis of vibration spectra and by analogy, the distances O....O should be approximately 2.3 Å and the bond energy between 30 and 50 kcal for each bond and between 60 and 100 kcal for each unit. Various theories on the structure of polymerized water are discussed: the structure of water with atoms of oxygen from molecules making up a hexagonal unit (D. Werner), the structure consisting of monomers and masses (Hemethy and
1/2

ROMANIA

TUCHEL, N., and VELEA, S., Farmacia, No 2, Feb 73, pp 65-77

Scheraga), polymer chains with multiple remifications and structure diaphragm
(Lipincott), and the theories of Frank, Wen, and Pauling. The possible
uses of polymerized water in the chemical industry and in the area of nuclear
reactors are mentioned. Emphasis is placed on the water as essential factor
in biological systems and as ideal solvent.

2/2
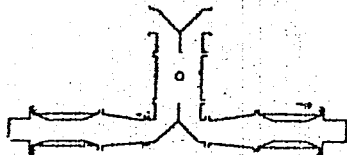
- 38 -

USSR   UDC: 621.372.852.27

GRISHMANOVSKIY, V. A., TUCHIN, B. M.

"A Waveguide Phase Shifter"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 10, Apr 71, Author's Certificate No 298017, Division H, filed 15 Sep 69, published 11 Mar 71, p 178

Translation: This Author's Certificate introduces a waveguide phase shifter with continuous phase variation containing a slot bridge, a conical adapter and a 90-degree differential phase section based on a circular waveguide. As a distinguishing feature of the patent, the dimensions and weight of the movable parts are reduced by butting a short-circuited rectangular waveguide section which is free to rotate up against the above-mentioned section of circular waveguide. This rectangular waveguide section is critical for one of the linear components of the circularly polarized wave.

1/1

- 139 -

USSR   UDC: 621.317.733

BUDNITSKAYA, Ye. A., NOVIK, A. I., SMOLYAR, Yu. A., TUCHIN, R. D., FESHCHEN-
KO, N. A., KHAZANOV, V. M.

"Some Circuits for Temperature Compensation of AC Bridges"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Re-
ports of the All-Union Scientific and Technical Conference on Radio Engineer-
ing Measurements. Vol. 1), Novosibirsk, 1970, pp 19-21 (from RZh-Radiotekhnika,
No 12, Dec 70, Abstract No 12A351)

Translation: The authors discuss the general principles of temperature com-
pensation of AC bridges. A simplified transformer bridge circuit with
temperature compensation of the reference specimen is given by way of exam-
ple. Two illustrations. N. S.

1/1

UDC 621.373:535/:546.293.128

USSR

SEDEL'NIKOV, V. A., SINICHKIN, Yu. P., TUCHIN, V. V.

"Some Characteristics of the Radiation Spectrum of an Ion Laser (Ar+)"

Leningrad, Optika i Spektroskopiya, Vol 31, No 5, 1971, pp 761-762

Abstract: The laser used in this experimental work was a sealed-off version of the LG-106 instrument, in which the magnetic field induction was smoothly varied from 0 to 840 gauss with the discharge current varied from 8 to 15 amp. The resonator consisted of a spherical mirror with a radius of curvature of 2 m, a transmission of about 0.2%, and a flat mirror with a transmission of 12.5%. The resonator length was 0.98 m, and the spectrum examined was of a line having a wavelength of 0.48 μ. A diagram of the equipment is given. The behavior of the level of the beat signals was investigated at several frequencies as a function of the discharge current at magnetic field strengths of 420 and 560 gauss, and it was found that these relationships are linear within discharge current ranges of 8 to 15 amp. Gratitude is expressed to N. V. Cheburkin for his comments.

1/1   - 113 -

UDC 622.011.43

USSR

TUCHINA, A. P.

"Physicomechanical Properties of Rock Masses"

V sb. Izuch. fiz.-mekhan. svoystv gorn. porod v Donbasse (Study of Physico-mechanical Properties of Rock in the Donbass--collection of works), Donetsk, 1969, pp 97-100 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V639)

Translation: The mechanism of the action of lateral rock on drift props is examined.

In an untouched mass the coal is under high pressure and contains sorbed methane. When exploitation proceeds, around it a region of transition atmospheric pressure to the pressure in the untouched mass is formed. In this region the methane expands, overcomes the resistance of the overburden, and is liberated in free form, causing stratification of the rock. Close to working faces the unloading zone is enlarged and deformations of rock layers caused by the vapor pressure of the methane considerably exceeding the weight of the rock itself rise.

A. S. Dimanshteyn

1/1

USSR

UDC: 621.317.335.3

GRUBNIK, N. N., ULINICH, R. B., TUCHINSKIY, A. M.

"Principle of Operation of an Installation for Measuring ε and tanδ of Heat
Resistant Insulation in the 400-3000 Hz Frequency Range at Voltages of up to
10 kV, and a Measurement Procedure"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Electrical Engi-
neering Institute of Communications), 1970, vyp., pp 178-183 (from RZh-
-Radiotekhnika, No 11, Nov 70, Abstract No 11A307)

Translation: The authors point out the drawbacks of existing equipment which
preclude measurement of the properties of dielectrics simultaneously at high
voltages (up to 10 kV) and high frequency (up to 3 kHz). A measurement method
is proposed which is based on using phase relationships in a resonance cir-
cuit assuming excitation from a current generator. The resonance circuit
in the device combines the functions of the fundamental element of the mea-
surement circuit and those of a high-voltage generator (transformer). The
circuit of the installation is given together with the fundamental relation-
ships in the circuit. The results of the studies are exemplified by graphs
of tanδ as a function of voltage at various temperatures and for specimens of
two dielectrics at a frequency of 1.2 kHz. Three illustrations. E. L.

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USSR   UDC 621.791.75:546.74:620.193.42

PAVLYUK, S. K., TUCHINSKIY, F. M.

"Corrosion Resistance of Welded Joints of Nickel in an Alkaline Medium"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 1972, p 76.

Abstract: Comparative corrosion tests were performed for the base metal and welded joints of NP2 nickel in an 80% aqueous solution of KOH with the addition of 7 weight parts of MnO_2 at 250°C. Study of the microstructure of specimens following testing showed no intercrystalline corrosion for any of the welding methods used (butt welding with a tungsten electrode in a mixture of argon and hydrogen with type NP2 wire, semi-automatic welding in argon with NMtsAT3-1.5-0.5 wire and automatic welding under BKN-48 ceramic flux with NP2 wire).

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USSR

UDC 621.762.5.001

KARPINOS, D. M., TUCHINSKIY, L. I., and FEFER, V. YA., Institute of Problems of Material Science, Academy of Sciences UkrSSR

"Calculation of the Corrected Work of Compacting During Dynamic Hot Pressing of Stratified Reinforced Materials"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 73, pp 7-13

Abstract: Energy expenditures are analyzed, producing an equation for calculation of the work of dynamic hot pressing of reinforced materials as a function of the plastic properties of the matrix and the geometric parameters of the composition considering the distribution of stress on the contact surface between fiber and matrix and the friction between them. The results of experimental testing of the equation during dynamic hot pressing of copper-molybdenum wire and nickel-molybdenum wire systems show that the work of compacting defined by the formula agrees well with the experimental results.

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Powder Metallurgy

USSR

UDC: 621.762.5.001

KARPINOS, D. M., TUCHINSKIY, L. I., FEFER, V. Ya., Institute of Problems of Material Sciences, Academy of Sciences UkrSSR

"The Problem of Compacting of Sandwich Materials by Hot Pressing"

Kiev, Poroshkovaya Metallurgiya, No 7, Jul 73, pp 43-50.

Abstract: An analytic dependence is produced, describing the compacting of sandwich-type reinforced material during hot pressing, considering the influence of smoothing of matrix projections pressed into the intervals between fibers. It is assumed that the compacting rate is controlled by the rate of steady-state creep of the matrix. It is shown that in the initial stages of hot pressing, compacting results only from fibers pressing into the matrix, after which the smoothing of the portions of the matrix pressed into the spaces between the fibers becomes significant. Experimental testing with reinforced copper-molybdenum and nickel-molybdenum specimens shows that the dependence produced describes the actual process of compacting of a reinforced material during hot pressing satisfactorily.

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